

AUSTPAC RESOURCES NL
Recommendation
Speculative Buy

Price: \$0.20
Date: 5th July, 2000

Capital Profile

ASX Code: APG
Sector: Junior
Issued Capital: 324.0 million
Market Cap: \$64.8 million
Cash: \$0.1 million
Debt: None
Options: None
Major Share: GIO – 4.4%
C Leech - 3.2%

Analyst: Mark Taylor

The Board
Alfred Paton (Chairman)

An engineer with 50 years experience. Currently Chairman of Centennial Coal, Oldfield Holdings and Airon Energy Limited, and a Director of Care Australia. Formerly MD and then Chairman of Placer Pacific and Kidston Gold and Director of Placer Dome Inc.

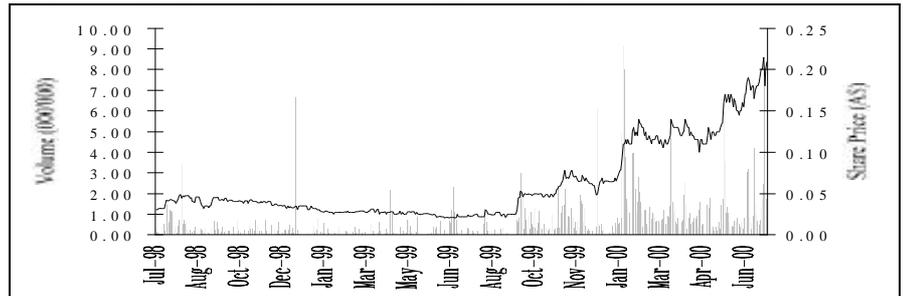
Michael Turbott (Managing Director)

A geologist, formerly a Director and Vice President of Kennecott Explorations (Aus), and directed programmes that led to the discovery of Lihir gold deposit and the acquisition of Gordonstone Coal mine.

Harold Hines

Mr Hines has 50 years experience in operations, development, management and consulting in the Mineral Sands and alluvial mining industry. He is currently MD of International Mineral Developments Pty Limited.

Austpac has at last gained further industry recognition for its revolutionary ERMS and EARS synthetic rutile manufacturing processes. The formation of a 50/50 joint venture with mineral sands and pigment producer, Ticor Ltd, for the global development of the technologies should launch Austpac into a new league. Significantly the structure of the deal sees ownership of the technology retained by Austpac. In addition, the deal also provides for funding of Austpac's share of future capital commitment.


KEY POINTS

- Austpac and Ticor have announced the formation of a 50/50 joint venture for the global development of Austpac's ERMS and EARS technologies for upgrading ilmenite. Austpac retains ownership of the technology and will licence the JV for use concerned with upgrading titaniferous feedstock. Ticor will advance a series of payments to Austpac totalling \$3 million based on agreed milestones being achieved. In addition, loan funds for Austpac's share of any joint venture projects will be provided by Ticor.
- Initially, the joint venture will participate in the AusRutile JV which was formed in August 1999 by Austpac and Indian Rare Earths Limited (IRE) to develop ERMS synthetic rutile plants in India. Under the new structure, Austpac and Ticor will each directly hold a 37% interest in AusRutile and IRE will hold the balance of 26%. The AusRutile project will commence with the construction of an initial plant of at least 10,000tpa of synthetic rutile adjacent to IRE's mineral sand operations at OSCOM in Orissa State. Ticor's participation in the project is subject to the formal approval of IRE and relevant Indian authorities. Once the initial plant is operating at design capacity, a full commercial scale plant is likely to be built. A 200ktpa synthetic rutile plant could generate cash flow in excess of US\$100 million per annum.
- ERMS has been successfully trialed on over 50 different ilmenites and has huge potential around the world to make non-economic ilmenites viable. ERMS works on any ilmenite, is cheap to build, has low operating costs, is faster and results in a higher grade and more valuable end product. In addition, incorporating the more cost effective EARS technology into an ERMS plant further enhances the economics of synthetic rutile production.
- It has always been recognised that maximum return for Austpac would be achieved by its participating in new synthetic rutile developments using the ERMS and EARS technologies. The JV with Ticor covers all aspects necessary for Austpac to achieve this goal, including the all-important financing requirements. We derive a potential NPV of \$0.48 per share for Austpac, however the potential blue-sky is considerably greater.

SHAW STOCKBROKING LIMITED A.C.N. 003 221 583
MEMBER CORPORATION OF AUSTRALIAN STOCK EXCHANGE LIMITED

Level 16, 60 Castlereagh Street
Sydney NSW 2000
Tel (02) 9238 1238
Fax (02) 9232 1296

Level 20, 90 Collins Street
Melbourne VIC 3000
Tel (03) 9268 1000
Fax (03) 9650 2277

55 Phillip Street
Parramatta NSW 2150
Tel (02) 9891 5644
Fax (02) 9891 1018

Austpac has two proprietary processes with direct application to the separation of ilmenite from mineral sand and production of synthetic rutile.

The ERMS process selectively magnetises ilmenite and conditions it for leaching.

The EARS process reconverts iron chlorides into hydrochloric acid at significantly less cost than alternative methods.

IRE controls almost 10% of the world's known ilmenite resources.

ERMS AND EARS TECHNOLOGIES (Austpac 90%, Rothschild 10%)

Titanium dioxide (TiO₂) pigment is the brilliant white pigment used in the paints and plastics industries and to a lesser extent in the paper industry. Worldwide over 3 million tonnes of TiO₂ pigment are sold annually, with a market value of more than US\$6 billion and average annual growth of 3%pa. Natural rutile, containing 90-95% TiO₂, occurs in some heavy mineral sand deposits and is used to manufacture TiO₂ pigment. However ilmenite, the iron titanium form of the mineral containing 50-60% TiO₂, is far more common but must be upgraded before it can be used to make pigment.

Austpac has developed two proprietary processes which have direct application to the separation of ilmenite from mineral sands and the production of synthetic rutile from ilmenite. These are:-

ERMS: Enhanced Roasting and Magnetic Separation, and
EARS: Enhanced Acid Regeneration System.

The ERMS process more effectively magnetises ilmenite than comparable methods so it can be easily separated from other minerals. In addition, ERMS roasting conditions ilmenite for rapid atmospheric leaching with hydrochloric acid. The EARS process reconverts iron chlorides into hydrochloric acid at significantly less cost than alternative methods. The combination of these two powerful techniques equates to a substantial leap in the treatability of ilmenites. The key to the company's ERMS patent is the control over the fuel to air ratio during the roast. With respect to EARS, the patent relates to feeding solid (pelletised) FeCl₂ into a fluid bed roaster which makes the use of coal or other solid fuel possible. Significantly, a short 30-minute re-roast and 2 hour re-leach can result in a near pure TiO₂ product which may be suitable for direct use as pigment. This represents a significant "value add" opportunity.

AusRutile JV (Austpac 37%, Tigor 37% & IRE 26%)

Indian Rare Earths (IRE), an Indian government owned agency, controls almost 10% of the world's known ilmenite resources on the East Coast of India. However, they are too low in grade to use the well-known Becher synthetic rutile technology. IRE's Orissa Sands Complex (OSCOM) is producing about 150,000 tonnes of ilmenite in excess of the needs of an existing Benilite plant, which is not operating at full capacity. In addition, the acid regeneration plant is producing sufficient acid for 25,000 tonnes of synthetic rutile, again excess to OSCOM's needs. Austpac recognised the opportunity that this represented some years ago and signed a JV agreement to construct a plant based on the ERMS and EARS technologies.

History of Austpac's IRE Agreement:-

- As early as 1996, Austpac introduced its technologies to IRE who then commenced a technical review of ERMS and EARS.
- In January 1997, Austpac and IRE signed a Memorandum of Understanding to investigate the technical and economic feasibility of using the ERMS process to produce high-grade synthetic rutile from Indian ilmenite.
- By 1998, testwork at Austpac's pilot plant in Newcastle demonstrated that a >96% TiO₂ synthetic rutile could be produced from Chatrapur (OSCOM) ilmenite.
- In August 1998, IRE and Austpac agreed to examine the feasibility of using the existing ilmenite production and acid regeneration facilities at OSCOM to support a 10,000tpa ERMS synthetic rutile plant. A pre-feasibility study was completed in December 1998.

Disclosure – Section 849 of the Corporations Law.

Shaw Stockbroking and persons associated with it (within the meaning of Section 849 of the Corporations Law) have an interest in the securities of Austpac Resources NL. Shaw Stockbroking has participated in a capital raising for APG and has earned fees for such activities.

This report is published by SHAW Stockbroking Limited ("SHAW") in good faith based on the facts known to it at the time of preparation and does not purport to contain all relevant information in respect of the securities to which it relates ("Securities"). Any projections are estimates only and may not be realised in the future.

HAW has prepared this report for multiple distribution and without consideration to the investment objectives, financial situation or particular needs ("Objectives") of any individual investor. Accordingly, any advice given is not a recommendation that a particular course of action is suitable for any particular person and is not suitable to be acted on as investment advice. Readers must assess whether the advice is appropriate to their Objectives before making an investment decision on the basis of this report. Readers can either assess the advice themselves or if they require a recommendation personal to them, they should seek the help of their SHAW client advisor.

HAW does not warrant or represent the accuracy of the contents of the report. Any persons relying on the information do so at their own risk. Except to the extent that ability under any law cannot be excluded, SHAW disclaims liability for all loss or damage arising as a result of an opinion, advice, recommendation, representation or information expressly or impliedly published in or in relation to this report notwithstanding any error or omission including negligence.

HAW will charge commission in relation to client transactions in the Securities and SHAW client advisors will receive a share of that commission. SHAW, its associates and their respective officers and employees may earn fees and commission from underwriting the Securities and may act as principal in respect of or otherwise have interests in the securities.

- By April 1999, Austpac and IRE had reached agreement on the commercial parameters for the development and operation of a 10,000tpa start-up plant adjacent to the existing OSCOM facilities.
- In August 1999, the parties signed a definitive JV agreement with Austpac and IRE holding interests of 74% and 26% respectively in a new JV company AusRutile India Pvt. Limited (AusRutile).
- In July 2000, Austpac and Tigor announce a 50/50 joint venture for the development of the ERMS and EARS technologies which will see Austpac's 74% in the AusRutile JV company halved to 37%. Tigor will provide loan funds for Austpac's share of the development costs of the plant.

Construction Timetable

Subsequent to necessary approvals being in place (expected by September), construction of the 10ktpa (more recently, it has been learned that the most efficient use of IRE's acid regeneration plant, enables the plant's throughput to be increased to 15ktpa) plant could commence immediately with production commencing approximately 15 months later in the beginning of 2002. Austpac has completed definitive testwork and Brisbane based Ausenco Limited has undertaken a site-specific study for plant layout and capital cost. The 15ktpa plant would have a capital cost of US\$7 million. The project could generate US\$1.9m after tax cashflow giving a 4 year payback. However, the resource at OSCOM is sufficient to support a plant producing over 200ktpa of synthetic rutile. Upon successful demonstration of the 15ktpa ERMS plant, the plan is to build an ERMS and EARS plant with a possible capacity of 200ktpa. Capex for the larger plant is estimated at US\$165 million due to the need to incorporate the EARS acid regeneration component. A 200ktpa project could generate revenues of US\$100 million and pre-tax cashflows of US\$53 million. Additional synthetic rutile plants incorporating ERMS and EARS technologies at greenfields sites elsewhere in India could follow.

The resource at OSCOM is sufficient to support a 200ktpa synthetic rutile plant.

A plant of this size could generate revenue of US\$100m and pre-tax cashflows of US\$53m.

Table 1. Summary Financials for OSCOM ERMS Synthetic Rutile Plants

ECONOMIC MODEL 15Ktpa ERMS SR PLANT, INDIA		ECONOMIC MODEL 200Ktpa ERMS SR PLANT, INDIA	
Capex	US\$7.0 million	Capex	US\$165 million
Revenue	US\$7.5 million	Revenue	US\$100 million
OPEX	US\$5.6 million	OPEX	US\$47 million
EBITDA	US\$1.9 million	EBITDA	US\$53 million
After Tax IRR	>15% (Ungeared)	After Tax IRR	>33% (Ungeared)

** Note: These figures are Austpac's internal estimates.*

Commercial licences have been signed for both ERMS and EARS technology.

The licence is an endorsement of the commercial potential and could result in significant cashflow to Austpac.

NPV of Iscor royalty stream could be A\$7-10 million.

Iscore Licences

After collaboration at Austpac's testing facilities in Newcastle, including a \$670,000 pilot plant testing programme in September 1997, Austpac granted Iscor licences to use The ERMS and EARS technologies at Iscor's Empangeni Heavy Minerals Project near Richards Bay in KwaZulu-Natal. The project includes construction of a mine, mineral separation plant and a 250,000tpa titania slag smelter complex. Austpac will receive a series of payments, the nature of which is subject to a confidentiality agreement, upon start-up of project. We have crudely estimated that the net present value of a royalty stream on a 250,000 tonne titania slag project could be worth between \$7-10 million. Project start-up was expected by mid 1999, however has been deferred pending completion of an ongoing feasibility study. No development decision has as yet been made, although Iscor chairman Hans Smith has said that an announcement on a decision to mine titanium sands is expected in the near future.

Global Potential

Potential for worldwide application of the ERMS/EARS technologies has improved significantly following the signing of the JV agreement with Ticor. Because of the applicability of the technology to a multitude of resources, other opportunities such as the Murray Basin deposits in Australia could present themselves. Particularly relevant is the success in using ERMS to remove chromite from a number of high-Ti ilmenite concentrates.

Table 2. AusRutile JV Assumptions

APG Equity	37%
Funding	Debt 100%
Interest Rate	12.0%
Depreciation	Strait Line 10%
Process Cost	US\$235/t
SR Price	US\$500/t
Tax	5-Year holiday, then 35%
Project Life	25 years
Discount Rate	10%
A\$/US\$ FX	US\$0.60
CAPEX-15ktpa	US\$7m
CAPEX-200ktpa	US\$165m
Start up-15ktpa	CY 2002
Start up-200ktpa	CY 2004

Valuation

ERMS and EARS Technologies

Subsequent to replacement of the ERMS R&D syndication with a joint venture, Austpac has a 90% direct interest in the ERMS and EARS technologies with Rothschild holding the 10% balance. We have valued this interest at \$30 million as it can be used in non-titaniferous feedstock upgrade applications such as is proposed at Iscor's Empangeni Heavy Minerals Project. The eventual value could be higher depending on its application.

Austpac/Ticor Global JV

The Austpac/Ticor Global JV has been valued by Shaw at \$25 million. This value is obviously reliant upon Austpac's participation in at least one other project of at least 100ktpa capacity, in addition to the AusRutile OSCOM developments. Initiation of other developments could significantly enhance this value.

AusRutile JV

Individually, we have valued stages 1 & 2 of the AusRutile JV at A\$3.6m and A\$87.3m respectively. Our assumptions are 100% debt funding, 12% interest rate, an Indian tax rate of 35% albeit with a five year tax holiday, project life of 25 years, a discount rate of 10% and A\$/US\$ exchange rate of 0.60. We have used costs of US\$235/t of synthetic rutile production, although Austpac believes that these could eventually be closer to US\$200/t. A flat synthetic rutile price of US\$500/t for +95% TiO₂. No valuation has been included for other IRE deposits which may fall within the AusRutile JV.

Other

We have valued the *Iscor licences* at \$8 million. The *cash* figure includes the staged \$3 million Ticor payment discounted at 10%. And finally, Austpac has no *debt*.

All up the potential valuation comes to \$155.8 million or 48¢ per share.

Table 3. Austpac Valuation	Interest	Value (A\$m)	Per Share (A\$)
Austpac ERMS and EARS technologies	90%	30.0	0.09
Austpac/Ticor Global Joint Venture	50%	25.0	0.08
AusRutile Joint Venture - Stage 1	37%	3.6	0.01
AusRutile Joint Venture - Stage 2	37%	87.3	0.27
Iscor Licences	100%	8.0	0.02
Cash (include discounted Ticor payments)		2.0	0.01
Debt		-	-
TOTAL		155.8	0.48

Risks

Country Risk – Much of the potential value of Austpac is reliant upon the successful implementation of its technologies in India. While we believe that there is every chance of success, we are not completely familiar with India and the inherent risks. Potential investors should consider this country risk carefully.

Project Delays – Delays to projects could occur due to regulatory and other issues. Iscor's Empangeni project has already been significantly delayed. In addition, the AusRutile initiatives will require ongoing regulatory approval through to the later stages.

Technology Risk – While pilot plant testwork has proven successful at Austpac's Newcastle facilities, there is some risk in scaling up to full size.